CITY OF WELCH SANITARY BOARD

LONG TERM COMBINED SEWER OVERFLOW CONTROL PLAN

CITY OF WELCH, WEST VIRGINIA

JUNE 2009

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TABLE OF CONTENTS

SECTION TITLE		PAGES
1.0	SUMMARY	1-1 – 1-3
2.0	INTRODUCTION	2-1 – 2-5
3.0	NINE MINIMUM CONTROLS	3-1 – 3-10
4.0	PUBLIC PARTICIPATION AND CONSIDERATION OF SENSITIVE AREAS	4-1 – 4-2
5.0	WATER QUALITY CONSIDERATIONS	5-1
6.0	CSO CONTROL ALTERNATIVES	6-1 – 6-5
7.0	CSO IMPLEMENTATION SCHEDULE	7-1 – 7-2

LIST OF APPENDICES

APPENDIX A	WEST VIRGINIA NPDES PERMIT
APPENDIX B	COMBINED SEWER OVERFLOW LOCATION MAP
APPENDIX C	DETAILED CSO REPORT FOR 2006, 2007 AND 2008
APPENDIX D	WATER QUALITY EVALUATION RESULTS
APPENDIX E	AMENDED CONSENT DECREE
APPENDIX F	COMBINED SEWER SYSTEM CLEANING AND INSPECTION SCHEDULE
APPENDIX G	COMBINED SEWER OVERFLOW INSPECTION SCHEDULE
APPENDIX H	CATCH BASIN CLEANING SCHEDULE
APPENDIX I	STREET CLEANING SCHEDULE
APPENDIX J	GREASE TRAP INSPECTION REPORTS AND NEW GREASE TRAP INSPECTION REPORT FORM
APPENDIX K	GARBAGE PICKUP SCHEDLUE
APPENDIX L	WELCH DUMPING ORDINANCE
APPENDIX M	WELCH PUBLIC NOTICE BROCHURE AND CUSTOMER SERVICE REQUEST FORM
APPENDIX N	LTPC-EZ FORM, ATTACHMENTS AND SUPPORTING INFORMATION
APPENDIX O	WELCH U.S. CENSUS DATA
APPENDIX P	WELCH SEWER TARIFF
APPENDIX Q	FEMA FLOOD MAPS AND DELINEATED CONTOURED DESIGN DRAWINGS
APPENDIX R	MONTHLY RAINFALL DATA FOR 2008 & 2009
APPENDIX S	NINE MINIMUM CONTROL SELF AUDIT FORM & NON-COMPLIANT DEADLINE DATES
APPENDIX T	OCTOBER 21, 2009 PUBLIC MEETING MINUTES AND AFFIDAVIT OF PUBLICATION
APPENDIX U	ADDENDUM TO CITY OF WELCH WASTEWATER TREATMENT AND COLLECTION SYSTEM OPERATION AND MAINTENANCE MANUAL

1.0 SUMMARY

The City of Welch is a combined sewer system community of approximately 2,683 persons, according to the 2000 U.S. Census. The city is located along the banks of the Tug Fork and Elkhorn Creek. The city currently has 18 permitted combined sewer overflows (CSO's). Of these 18 CSO's, three have already been capped off or removed, two will be capped off on March 31, 2009, and three more will be capped off at the completion of Contract No. 7C, which has already been funded and will be under construction in 2009. The city operates their wastewater treatment plant under WV/NPDES Permit No. WV0024589.

In 1994 Judge Elizabeth V. Hallanan issued a court order to the City of Welch requiring that final engineering design and plans be completed by July 31, 1997. Stafford completed the design and plans on schedule and construction was completed for Contracts 1 through 4 in 1997. Contracts 1 through 4 comprised the wastewater treatment plant and the main interceptor lines mainly along Elkhorn Creek and Tug Fork.

Contracts No. 5 through 8 addressed the collection lines throughout Welch. The city has been addressing portions of these contracts in phases and has been successful in completing the majority of Contract No. 7 and No. 6. In fact, the city has already received funding for Contract No. 7C, which will commence construction in 2009. Additionally, a funding request will be submitted in 2009 for Contract No. 7D. Once this contract (7D) is completed, all areas within the Contract No. 7 area will have been separated from the combined sewer system, except for approximately five residences on Court Street. These homes can be easily connected to the new sewage collection system since the West Virginia Division of Highways has now corrected the slip below these houses.

A majority of the Contract No. 6 area is currently being completed in association with the construction of a new sewer interceptor line that will serve the new Federal Correctional Facility.

As required in the Environmental Protection Agency's CSO Control Policy, nine minimum controls have to be implemented by the City of Welch. These controls are as follows:

3.1 Proper Operation and Maintenance Program

3.2 Maximization of Storage in the Collection System

3.3 Review and Modification of Pretreatment requirements

3.4 Maximization of Flow to the POTW for Treatment

3.5 Elimination of CSO's During dry Weather

3.6 Control of Solids and Floatable Materials in CSO's

3.7 Pollution Prevention to Reduce Contaminants in CSO's

3.8 Public Notification

3.9 Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls

These controls are discussed in detail in "Section 3 – Nine Minimum Controls"

Public participation and notification are essential elements of any CSO control policy. The City of Welch has sought to identify whether any of the streams impacted by its CSO's are Sensitive or Priority areas. None of the three streams impacted by the CSO's meet the definition of sensitive areas. The Tug Fork and Elkhorn Creek would meet the definition of "Priority Areas" since both are high quality fishing streams with public access for this purpose. This would involve wading into the waters of both Tug Fork and Elkhorn Creek, which is considered less than full contact recreation, falling under the category of "Priority Areas".

The City of Welch will begin placing legal advertisements in the newspaper on an annual basis, explaining the importance of avoiding CSO's and identifying the streams that are impacted by these CSO's. Signage is already in place at each CSO, warning of the need to stay clear of the CSO during wet weather events. Educational brochures are made available to the public at city hall.

When a CSO event occurs, a media advisory is read on the local radio station, along with an advertisement in the local newspaper.

Elkhorn Creek and Tug Fork have been assessed under the 305 (b) and 303 (d) state water quality standards agency as being threatened of impaired. Tug Fork is impaired biologically and for fecal coliform. Elkhorn Creek is impaired for iron. The pollutants associated with CSO's may be cited as contributing to fecal coliform, but not iron.

Future actions to minimize and eliminate discharges from the city's remaining CSO's will be necessary in the long range CSO control strategy. Some of the methods for maximizing CSO control are as follows:

6.1 Conveyance and Treatment at the Wastewater Treatment Plant

This will require a lift station be added to each of the CSO's and a force main connected to transport the combined sewage to the wastewater treatment plant. Additionally, the existing wastewater treatment plant will need to be significantly expanded to accommodate this increased flow. The total estimated cost for this alternative will be:

$21,465,632

6.2 Inflow Reduction

Inflow reduction through the reduction or elimination of roof leaders and downspouts is relatively easy to address. However, the positive affects are limited due to the fact that, once removed from the combined sewer system, some of the downspout/roof leader discharge will find their way into street catch basins and then back into the combined sewer system. The total estimated cost for this alternative is:

Within the Drainage Areas of Active CSO's Only.....$69,500

Comprehensive Inflow Reduction Throughout Welch.....$363,250

6.3 Sewer Separation

Sewer separation is the process whereby new sanitary sewage collection lines are constructed. This separates the sanitary sewage from the combined sewage system, leaving only storm sewage discharging to the streams. The City of Welch has been employing this method of CSO elimination through its ongoing sanitary sewage system construction program with some measurable success. The total estimated cost to continue with this alternate is:

$22,622,461

6.4 Off Line Storage

Off line storage provides temporary storage for combined sewer flow during a wet weather event. After the wet weather event has passed, the stored combined sewage is then gradually introduced into the combined sewage system for conveyance to the wastewater treatment plant. The topography of Welch and the limited availability of free space make the implementation of this alternative very unlikely. Therefore, this alternate will not be investigated further.

6.5 Wet Weather Treatment Facilities

These treatment facilities are located at each CSO. All of the City of Welch CSO's are located along the steep banks of Elkhorn Creek, Tug Fork or Browns Creek. The feasibility of constructing treatment facilities at these locations is highly unlikely. Therefore, this alternate will not be investigated further.

The City of Welch prefers to proceed with continuing its implementation of sewer separation through the construction of new sanitary sewer lines. The future implementation schedule involves phasing each of the four remaining contracts with initial priority given as follows:

Priority No. 1	Contract No. 7
Priority No. 2	Contract No. 8
Priority No. 3	Contract No. 5
Priority No. 4	Contract No. 6

However, the city reserves the right to revise the priority if local needs or potential economic development opportunities present themselves.

2.0 INTRODUCTION

The City of Welch is a combined sewer system community (CSS) of approximately 2,683, according to the 2000 Census. The City of Welch is located along the banks of Elkhorn Creek and Tug Fork, in McDowell County West Virginia. The city operates their wastewater treatment plant under WV/NPDES Permit WV0024589. This permit allows a flow of 1.12 million gallons per day and is included as Appendix A. The hydraulic capacity of the collection system (at its terminus at the wastewater treatment plant) and WWTP lift station is 3.50 million gallons per day.

All issues associated with the Long Term Control Plan can be addressed to Mayor Martha Moore at:

City of Welch
88 Howard Street
Welch, WV 24801
(304) 436-3113
E-Mail: welchwv@mcswv.net

In 1994 the United States Environmental Protection Agency (EPA) issued a national policy statement entitled "Combined Sewer Overflow Control Policy." The purpose of this policy was to establish a consistent approach for controlling CSO discharges through the National Pollution Discharge Elimination System (NPDES). The major provisions of CSO control policy required CSO permitees, such as the City of Welch, to accurately characterize their CSS and CSO discharges, demonstrate implementation of minimum technology based controls and develop long-term CSO control plans, which evaluate alternatives for achieving compliance with the Clean Water Act. The West Virginia Department of Environmental Protection (WVDEP) is the NPDES and water quality standards authority responsible for reviewing the long-term control plans and ensuring consistency with the CSO Control Policy.

Stafford Consultants, Inc. was retained by the City of Welch to assist in characterizing the CSS, evaluating the impact of CSO discharges on the receiving stream, and developing the long-term control plan. Currently, the City has eighteen permitted CSO's. The permitted CSO locations are summarized below:

CSO No.	Description	Receiving Stream	Latitude	Longitude
004**	Pendry's Body Shop	Tug Fork	37° 26 ' 22"	81° 35' 26"
005	Floodwall	Tug Fork	37° 26' 7"	81° 35' 11"
006°	Behind Flatiron Drug Store	Tug Fork	37° 25' 57"	81° 35' 10"
007	83 Summers Street	Tug Fork	37° 25' 27"	81° 35' 8"
008	149 Summers Street	Tug Fork	37° 25' 25"	81° 35' 10"
009	End Summers Street	Tug Fork	37° 25' 17"	81° 35' 19"
010	97 Lake Drive	Tug Fork	37° 25' 11"	81° 35' 25"

CSO No.	Description	Receiving Stream	Latitude	Longitude
013	Behind Horne Lumber	Tug Fork	37° 24' 50"	81° 35' 9"
014	Southwood Entrance	Tug Fork	37° 24' 48"	81° 35' 3"
015	1033 Riverside Dr.	Tug Fork	37° 24' 47"	81° 34' 56"
017 °	At Armory	Browns Creek	37° 26' 20"	81° 34' 37"
020***	Welch P.O. Bridge	Elkhorn Creek	37° 25' 50"	81° 35' 9"
021**	Mikes Powerhouse	Elkhorn Creek	37° 25' 54"	81° 35' 2"
023	At State Farm Office	Elkhorn Creek	37° 26' 3"	81° 34' 56"
024	At Social Sec. Office	Elkhorn Creek	37° 26' 7"	81° 34' 54"
025 °	Court Street Bridge	Elkhorn Creek	37° 26' 9"	81° 34' 51"
026***	Apartment Building	Elkhorn Creek	37° 26' 8"	81° 34' 46"
027***	At Wolf Tire	Elkhorn Creek	37° 26' 7"	81° 34' 40"

** These CSO's were capped off on March 31, 2009
*** These CSO's will capped off at the completion of Contract No. 7C, which will be under construction in 2009.
° These CSO's are capped or removed

Appendix B contains a map of the above CSO locations.

The land use estimates for each of the CSO's are included in the LTPC-EZ Form located in Appendix N. These land use estimates range from "single family" to "unimproved".

All of the city's CSO's are fitted with a rubber "duckbill" backflow prevention device, manufactured by "Tideflex". The city detects each CSO event by visual observation. Each CSO is fitted with a lightweight plastic survey ribbon attached to the inlet side of the backflow prevention device. In the event of a CSO event, the backflow prevention device opens and allows the free end of the ribbon to pass through the duckbill opening. Once the CSO event is completed, the "duckbill" closes and pinches the ribbon in place. Detection involves observing if the ribbon is visible on the outside of the backflow prevention device. Once this observation takes place, the ribbon is reset to its previous position, ready for the next CSO event. On May 27, 2009 the City of Welch purchased a portable flow meter for use in its CSO's. Upon delivery the City will install the meter in 7 through 9 and 13 through 15 in numerical order. These CSO's are located along Tug Fork and are upstream of Elkhorn Creek. See maps in Appendix B for the location of these CSO's. The City inspects each CSO on a weekly basis and immediately after each rain event.

During 2006 the City of Welch experienced a total of 10 wet weather CSO events from its CSO's. During 2007 the city experienced 19 wet weather events from its CSO's. In 2008 the city experienced a total of 31 wet weather events from its CSO's. In July of 2008, CSO No. 25 was capped. In the first quarter of 2009, the city experienced 14 wet weather CSO events. Appendix C contains a detailed CSO report for each CSO for the

period from 2006 through the first quarter of 2009. However, the report in Appendix C records the total number of openings for each CSO regardless of whether these openings occurred during the same rainfall event. The city's personnel have revisited their database for each of the recorded years and consolidated the individual CSO openings into single rainfall events. The number of events detailed in the beginning of this paragraph reflects this consolidation.

The City of Welch has a long-term administrative commitment to providing for properly trained personnel for the ongoing CSO program and capital spending. Their efforts include funds available from the general wastewater collection system budget to maintain the existing CSO's and identifying and removing sources of non-combined sewer system inflow/infiltration, annual training for personnel along with safety and training meetings and capital improvements associated with the separation of sewers from the existing CSS. The results of the water quality evaluations at each CSO are included in Appendix D.

There has not been any substantial change in the City of Welch's customer base. However, a federal prison, currently under construction, will have a significant impact on the wastewater flow from the Edmore/Browns Creek section of the wastewater collection system.

The existing equipment in the wastewater collection and treatment system appears to be in good working order.

The wastewater treatment plant components consist of a wastewater pumping station, mechanical bar screen, screw compactor, grit removal unit, head work structure, orbal aeration unit, clarifiers, disinfection unit, return sludge pumps, post aeration unit, waste sludge holding tank, waste sludge pumping station, waste sludge processing unit, laboratory building, garage building and appurtenances. The wastewater treatment plant is permitted at a design discharge of 1.12 million gallons per day, with a hydraulic capacity of 1.8 million gallons per day. The wastewater treatment plant has no primary treatment facilities. The wastewater treatment plant has an average dry weather flow of 0.34 MGD.

In 1994 Honorable Elizabeth V. Hallanan issued a court order to the City of Welch requiring final design and engineering plans for the entire wastewater collection system to be completed by July 31, 1997. The Department of Environmental Protection followed up with a letter indicating that construction should begin no later than September 30, 1996. Design and engineering plans for the entire wastewater collection system were completed and construction of Contracts 1 through 4 was completed in 1997. Contract No. 1 comprised the wastewater treatment plant and Contracts 2,3 and 4 comprised the main wastewater interceptor lines. The wastewater interceptor lines were constructed mostly along the banks of Elkhorn Creek and Tug Fork, with some branch line extending up Browns Creek and Indian Creek. The Amended Consent Decree, signed by Judge Hallanan on July 16, 1996, is included as Appendix E.

As a result of the completion of Contracts Nos. 1 through 4 and subsequent phased construction of portions of Contracts 6 and 7, the City of Welch's new wastewater collection system consists of approximately:

28,400	lineal feet of eight-inch gravity sewer line
19,500	lineal feet of ten-inch gravity sewer line
11,600	lineal feet of twelve-inch gravity sewer line
1,100	lineal feet of sixteen-inch gravity sewer line
2,800	lineal feet of eighteen-inch gravity sewer line
7,700	lineal feet of twenty four-inch gravity sewer line
443	manholes
23	cleanouts
4	lift stations
650	lineal feet of three-inch force main
310	lineal feet of six-inch force main
1,000	lineal feet of eight-inch force main
520	lineal feet of twelve-inch force main

as well as the remaining combined storm sewer system currently in use.

Contracts No. 5, 6, 7 and 8 were to be implemented at a later date. These contracts addressed the branch wastewater collection lines within Welch. Implementation of all these contracts will eventually separate all existing combined sewer systems in Welch and retire all CSO's. The geographic area covered by each of Contracts 5 through 8 are as follows:

Contract No. 5: This contract covers the area adjacent to the wastewater treatment plant at Hemphill and extends into downtown Welch to the confluence of Tug Fork and Elkhorn Creek. None of this contract has been implemented to date. However, a funding application has been filed by the McDowell County Commission to implement a portion of Contract No. 5 from the Bridge crossing Tug Fork into the community of Hemphill to the Wastewater Treatment Plant. The community of Capels, downstream of the wastewater treatment plant, will also be included in this contract.

Contract No. 6: This contract consists of wastewater collection lines along Stewart Street and Browns Creek to the Welch City Limits. A portion of this contract is currently under construction as part of the wastewater collection system extension to the new federal correction facility. Upon completion, it will still be necessary to construct branch lines in this area to separate existing combined sewer systems.

Contract No. 7: This contract begins at the confluence of Tug Fork and Elkhorn Creek and extends along Elkhorn Creek. The City of Welch has implemented Contracts 7A and 7B with the goal of separating combined sewage systems within this contract area. Due to the size of this overall contract, it has been sub-divided into phases to accommodate available funding. Contract 7C has already been funded at $1,500,000 and designed. This phase of the Contract No. 7 area has already been approved for construction and will be under construction in 2009. A funding application of $1,330,000 will be submitted for

Contract No. 7D in 2009. If the application is successful, this phase will complete the separation of all combined sewage systems within the Contract No. 7 area, with the exception of five customers on Court Street. Construction cannot commence in this area until the West Virginia Division of Highways repairs a slip area. CSO's number 6 and 25 have already been capped. CSO number 21 will be capped on March 31, 2009 and, with the completion of Contract No. 7C, CSO's number 20, 26 and 27 will be capped.

Contract No. 8: This contact also begins at the confluence of Elkhorn Creek and Tug Fork, but extends along Tug Fork to the southern limits of the City of Welch, near the unincorporated community of Havaco. None of this particular contract is currently under construction.

As shown above, the City of Welch has been rather successful in garnering funding to implement a phased approach to complete Contracts 5,6,7 and 8. The city is committed to continuing the process of aggressively pursuing all available funding and implementing construction with the goal of eliminating all outstanding CSO's.

3.0 NINE MINIMUM CONTROLS:

As required in the CSO Control Policy, municipalities were obligated to immediately implement best management practices to reduce CSO's and their effect on receiving streams. A brief description of each minimum control measure is discussed below, along with the City's status of compliance with each of the nine minimum controls. Appendix S includes a recently completed "Nine Minimum Control Self Audit Form".

3.1 Proper Operation and Regular Maintenance Program

According to EPA's "Guidance for Nine Minimum Controls", the first minimum control should consist of a program that clearly establishes operation and maintenance and inspection to assure that the combined sewage system and the wastewater treatment facility will function such that maximized treatment is attained while complying with the NPDES Permit limitations.

Organizational Structure: The Superintendent works under the general supervision of the City of Welch Sanitary Board, and directs the activities of the water and wastewater personnel as well as the streets commissioner. There are 5 employees directly associated with the combined sewage system maintenance.

The City of Welch Sanitary Board receives reports from the Superintendent and Wastewater Treatment Plant Operator regarding the status of the wastewater treatment plant and collection system operations, along with updates from the streets commissioner related to street, and drop inlet cleaning. The Sanitary Board provides general instructions to the Superintendent and Wastewater Treatment Plant Operator.

The Superintendent has nine years of experience in the operation and maintenance of the city's wastewater collection system. The Wastewater Treatment Plant Operator is fully licensed. The Superintendent's duties are as follows:

Preparation of annual operation, maintenance and equipment replacement budgets for presentation to the City of Welch Sanitary Board's approval. Upon approval, he is responsible for implementing the operation, maintenance and replacements and monitoring budget expenditures.

Insuring that the sanitary board staff are adequately trained and equipped for completing assigned tasks related particularly to maintaining compliance with the NPDES Permit.

Scheduling routine operation and maintenance procedures

Reporting the status of the combined sewer system to the City of Welch Sanitary Board.

With the assistance of the wastewater treatment plant operator, prepare monthly operating reports for submittal to the West Virginia Division of Environmental Protection.

The maintenance personnel are responsible for completing assigned tasks and reporting any operating problems to the Superintendent.

Additional personnel with indirect involvement in the maintenance of the combined sewage system, as it relates to street and drop inlet cleaning, are employed by the street department and are under the supervision of the Street Commissioner.

Due to the location of major wastewater interceptor lines along the banks of Elkhorn Creek and Tug Fork, major repairs in these areas are typically contracted out.

In order to assure that there are sufficient funds in the operation and maintenance budget, the City of Welch Sanitary Board must consider the following items in its evaluation:

Personnel requirements for maintenance of the combined sewer system

Providing opportunity for personnel to attend pertinent technical and safety seminars.

Maintaining a list of equipment and tools necessary to adequately and safely perform all assigned tasks.

Through its Consulting Engineer, applying for funding and implementing capital improvements projects necessary to maintain compliance with the NPDES Permit. These capital improvement projects include smaller endeavors that can be accomplished with the sanitary board's existing staff and equipment and contracting out those projects that are too large to be accomplished with in-house forces.

The following inspection and maintenance charts have been developed for use by the sanitary board maintenance personnel and indirectly to the street maintenance personnel.

Sewer Inspection and Cleaning: The Superintendent has identified the location where flow restrictions can be anticipated and cleaning of sewers is necessary. The chart provides for the "manhole-to-manhole" location of each section of the combined sewer system that is cleaned along with a manhole inspection form. Cleaning is performed by a trailer mount flushing system with 474 feet of hose and a nozzle pressure of 2000 psi. The Sewer Inspection and Cleaning Chart is included as Appendix F

Combined Sewer Overflow Inspection and Cleaning Schedule: The CSO's and the discharge sites are inspected weekly and always during a rainfall or heavy snowmelt event. The "duckbills" of the backflow preventors are inspected weekly to remove debris, both in the "duckbill" and in the immediate discharge area. All CSO's are opened for visual inspection every two months and any debris, floatable material and sediment removed. This inspection interval will be increased in cases where there are heavy rains. The Combined Sewer Overflow Inspection Form and Rainfall Report are included as Appendix G.

Catch Basin Inspection and Cleaning: In coordination with the street department, a schedule of catch basin cleaning and inspection is being prepared. Currently the schedule calls for cleaning and inspection of the downtown area during the first quarter, McDowell Street during the second quarter, Stewart Street during the third quarter and Jr. Poca and Edmore Village during the fourth quarter of each year. The Catch Basin Inspection and Cleaning Schedule is included as Appendix H.

Street Cleaning Schedule: The street department performs this work. Depending upon traffic and other pertinent factors, streets within the City limits are cleaned either daily, weekly or monthly. The proposed Street Cleaning Schedule is included as Appendix I and delineates the streets by cleaning frequently.

Grease Trap Inspection: Historically, the City of Welch Wastewater personnel visits with each of the facilities requiring grease traps, to check that regular cleaning has taken place by a licensed hauler/disposer. If there is cause for concern related to this visit, the personnel will inspect the grease traps themselves. The sewer system is regularly inspected in the immediate vicinity of each grease trap discharge location to ascertain that no grease discharges have made their way into the sewer system. During the years of 2003, 2004, 2005 and 2006 the City maintained records of these inspections and they are included as Appendix J. The Sanitary Board will re-initiate a more formal grease trap inspection program in the near future. The proposed Grease Trap Inspection Schedule is also included in Appendix J.

The Sanitary Board utilizes daily rainfall amounts, observed at the wastewater treatment plant's rain gauge, to assist maintenance staff in determining when non-routine maintenance and monitoring procedures will be necessary. The sanitary board includes flood cleanup of the combined sewer system and combined sewer overflows in its annual budget. In cases where there is large-scale damage and cleanup resulting from a major flood event, the city has, and will, continue to secure Federal Emergency Management Agency funds to assist with repairs, inspection and cleaning.

The Sanitary Board operates one recording rain gauge at the wastewater treatment plant. A second recording rain gauge is owned by the city and it will be placed at City Hall. These two gauges will allow the maintenance staff access to accurate and immediate information, which will improve response time for both routine and non-routine maintenance and monitoring needs to be performed. In addition to the recording rain gauges, manual rain gauges are located at Sanitary Board personnel's residences in North Welch and Stewart Street.

A typical procedure for responding to emergency situations is as follows:

Step 1 Notification of Superintendent concerning the emergency situation

Step 2 The Superintendent assesses the situation to determine the resources that will be necessary in addressing the emergency situation. Unrelated city departments, such as the police chief, fire department and other department heads will be notified for aid as necessary. If the emergency situation results in the discharge of untreated wastewater, the Superintendent will contact the West Virginia Division of Environmental Protection's "800" call center.

Step 3 The Superintendent will obtain the necessary equipment and materials to correct the emergency situation and obtain outside services when necessary.

Step 4 Provide follow-up communication with the West Virginia Division of Environmental Protection representative to confirm that repairs have been accomplished and the emergency situation has been satisfactorily addressed.

The City of Welch has historically contracted with "Pipe Plus" from Nitro West Virginia or "Rover Construction" from St. Albans West Virginia for non-routine sewer repairs.

Training: The Superintendent has conducted operation and safety training for Sanitary Board personnel. Overall operation and safety training programs address the following topics:

Combined space entry procedures

Combined sewer system operation and maintenance

Wastewater treatment plant operation, maintenance and safety

Maintenance of Traffic through construction sites

3.2 Maximization of Storage in the Collection System

The most straightforward and initial way to maximize the storage in a combined collection system is to identify sources of inflow and infiltration that are relatively simple and inexpensive to remove. The City of Welch has completed an aggressive program of identifying sources of inflow from downspouts and building drains. This program has been implemented through the use of smoke testing. An inventory of the offending discharges has been created and the City has begun the process of requiring these dischargers to remove the sources of inflow from the combined sewer system. The elimination of this source of inflow will only have partial near-term success due to the fact that these inflow sources, once "daylighted" to grade, will find there way into the combined sewer system through street drop inlets and catch basins. However, with the City's long-term goal to eventually separate all domestic sewage from the combined sewer system, this inflow elimination will have some short-term benefit and significant long-term benefit.

As stated in previous sections, the city has initiated major construction projects, whose purpose is to separate the city's domestic sewage from the combined sewage system. As these projects are completed, existing CSO's have been and will be retired. As a result of these efforts, the amount of inflow from storm water is, and will be, gradually reduced and eliminated.

The City's ongoing program of periodically cleaning the combined sewage system, and its efforts to continue a regular street cleaning and catch basin/drop inlet cleaning eliminates sources of debris build up, which can significantly reduce the combined sewer systems capability to store and convey surcharge flows.

Each CSO is configured so that normal domestic sewage flow, and storm water flow is directed into the combined sewer interceptors aligned along the banks of Elkhorn Creek

and Tug Fork. During a larger storm flow event, water is allowed to back up in the CSO structure to well over the crown of the interceptor pipe before discharging to the stream. As such, full advantage is taken of the excess volume in the interceptor pipe for maximization of storm flow storage.

3.3 Review and Modification of Pretreatment Requirements

The third minimum control measure from the EPA guidance document stipulates that the City should determine if non-domestic sources are contributing detrimentally to CSO's and investigate ways to control them.

As part of its Sewer Use Agreement, the City of Welch Sanitary Board requires that all food preparation establishments provide acceptable pre-treatment for grease and oils. As stated earlier, the Welch Sanitary Board has historically kept records on its inspection of grease traps through 2006 and continues to conduct these inspections on a two-to-three month interval. The city anticipates re-initiating its record keeping beginning the second quarter of 2009. Only one grease discharge into the combined sewage system has been recorded to date. This was at the Stevens Correctional Facility and steps were immediately taken by the correctional facility to correct the problem with their grease pre-treatment process. Additionally, the city acted quickly to cleanup the immediate downstream pipeline so that the grease would not migrate further into the combined sewage system.

Other establishments that are requires to pre-treat their wastewater discharges include two doctor's offices, one dentist office and the Welch Community Hospital. These discharge X-Ray silver and, in all cases, an acceptable silver separator is used. One funeral home discharges formaldehyde directly into the city's combined sewer system.

3.4 Maximization of Flow to the POTW for Treatment

As stated in an earlier section, the CSO discharges are configured such that maximum storage and flow capacity is achieved in the wastewater interceptor lines along Elkhorn Creek and Tug Fork. Regular cleaning and inspection of these lines, as well as the collection system lines provides for maximum flow capability to the wastewater treatment plant. A lift station along Tug Fork, and adjacent to the wastewater treatment plant conveys the wastewater to the headworks of the wastewater treatment plant. This lift station has three submersible pumps. When necessitated by the flow into the lift station, these pumps can produce 2,425 GPM at 45 feet TDH. This lift station flow rate equates to 3.5 MGD, which is the hydraulic capacity of the collection system near the wastewater treatment plant.

Welch's wastewater treatment plant utilizes an orbal treatment process. This process provides for a treatment process that conveys wastewater through gradually smaller concentric chambers to the center of the unit. To provide for greater treatment flexibility, the outer chambers can be "valved off", directing the influent wastewater into the inner chambers. Currently the wastewater treatment plant personnel keeps the outer orbal chamber empty so that storm water flows can be discharged into this chamber to mitigate surcharges and to provide additional storage for wet weather flow.

The wastewater interceptor along Tug Fork and Elkhorn Creek are the most significant bottleneck in the exiting combined sewer system. With a maximum pipe diameter of 24-inches upstream of the wastewater treatment plant, there is a functional limit to the carrying capacity of this system. Funding constraints and the long-term plan of separating all domestic sewage from storm drainage, drove the decision to limit the size of the interceptor.

3.5 Elimination of CSO's During Dry Weather

The City has not recorded a dry weather combined sewer overflow within its combined sewer system. To assure that dry weather overflow would be noticed, the Sanitary Board's personnel inspect the CSO's on a weekly basis. As described earlier, a lightweight section of plastic survey ribbon, hung across the inside of the CSO's discharge pipe provided a "tattletale" signal of any discharges. Should a dry weather overflow be encountered, the Sanitary Board will follow its standard procedure for contacting the West Virginia Pollution Spill Alert Hotline immediately. Also, in the event of a dry weather overflow, the public would be notified in a timely manner by announcement on a local public radio station and local newspapers.

3.6 Control of Solid and Floatable Material in CSO's

This sixth minimum control measure is intended to reduce floatable material from the combined sewage system. The most affective way to reduce floatable materials is to eliminate them at their source. The City of Welch maintains trash receptacles at various locations throughout the downtown business area as well as all public use (park) areas. Additionally, the city maintains a regular street sweeping and garbage pickup schedule. Welch's garbage pickup schedule is included as Appendix K. The street cleaning schedule is included as Appendix I.

Once floatable material and other settleable debris are introduced into the combined sewage system, it is possible to intercept them before they find their way into the CSO structures. As mentioned previously, the City of Welch maintains a regular catch basin cleaning schedule that is included as Appendix H.

All businesses that provide temporary facilities for storing oil and greases, such as garages and gas stations, maintain pick up and disposal service through a licensed oil and grease hauling/disposal service.

As a fail-safe measure, snorkels can be fitted inside each active CSO to prevent floatable materials from entering the combined sewer interceptor lines. These assemblies are reasonably inexpensive and easy to maintain. The City of Welch is considering installing snorkels at each CSO to mitigate the conveyance of floatable into the interceptors and is installing wire mesh screens on the inside of each CSO to catch floatables and debris. These screens will be cleaned after each rainfall event.

3.7 Pollution Prevention to Reduce Contaminants in CSO's

This minimum control is intended to keep contaminants from entering the combined sewer system and impacting the streams through the CSO's. The Pollution Prevention Control Act of 1990 established a national strategy for pollution prevention. This measure is focused more on behavioral changes rather that storage or treatment equipment. Many of the measures employed by the City of Welch, detailed in Section 3.6 above are effective in controlling the pollution issues addressed herein. The City of Welch owns one street sweeper, which operates on a regular basis. The garbage collection personnel empty trash receptacles. Additionally, the city has a fall leaf removal program.

However, many of the above programs are ineffective if behavioral changes do not take place. Therefore, the City has enacted an ordinance to prohibit illegal dumping and littering which is included as Appendix L.

3.8 Public Notification

The eighth control measure is the proper notification to the public of the location of all CSO discharges. The possible health and environmental impacts of CSO's and the recreational activities are limited as a result of the CSO's.

The City of Welch has signs posted on the body of each CSO structure or adjacent to the structure, with appropriate precautions and warnings. Dry weather CSO' will be promptly reported to the public by radio announcement.

A map is posted at city hall showing the location of each CSO structure, including all the sampling sites. Brochures are available at city hall providing the public with valuable information concerning the function of CSO's and the safety precautions to be observed when a CSO is discharging. Any dry weather CSO discharge will be posted at city hall as well.

On October 21, 2009 a public meeting was held in the Welch Public Library. The minutes of that meeting are included as Appendix T.

3.9 Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls

The intent of the ninth control measure is to determine the occurrence and apparent impacts of CSO's through visual observation or other straightforward methods. Accurate mapping of the combined sewer system and combined sewer overflow structures is necessary to begin the process of determining the combined sewer overflow impact. The City of Welch has mapping to a 1" = 50' scale that depicts all known existing combined sewer system locations, but also includes all existing and proposed wastewater collection system piping locations. The Sanitary Board personnel inspect each CSO structure on a weekly basis. In addition, when wet weather events occur, observations are made at each overflow and can be correlated with the rainfall data gathered from the rain gauge at the city's wastewater treatment plant. Once the city installs the second recording rain gauge, this correlation will be much easier to perform. If the rainfall event occurs during regular

working hours, personnel will inspect each CSO during the event to assure that they are functioning properly.

The Sanitary Board maintains rainfall data and organizes this data in chart format on a monthly basis. The rainfall charts are included in Appendix R. Based upon experience, the Sanitary Board personnel have determined which CSO's will open given a certain intensity of storm as follows:

CSO Number	Rainfall Intensity (inches per hour)
#5 and #7	1.5 inches
#8 and #10	0.7 inches
#9, #14, #26 and #27	1.0 inches
#23 and #24	0.75 inches
#20	0.4 inches

This demonstrates that the Welch Sanitary Board understands how its CSO's respond to rainfall stresses, which equips them to monitor and respond efficiently to overflow events.

The Sanitary Board is also in the process of purchasing a portable flow meter that can be relocated from time to time. This acquisition will allow a greater level of accuracy in determining the volume of flow from each CSO. The meter will be located in CSO's in accordance with their priority and "event" frequency.

Historically, the City of Welch has taken grab samples both upstream and downstream of each CSO. This practice ceased in 2004. However, each of the sampling sites is marked with a white plastic pipe marker. The city anticipates re-initiating this sampling program during the second quarter of 2009. The results of the sampling program are included as Appendix D. These results are also kept at the wastewater treatment plant.

3.10 Response to Review of 9/14/2009 WVDEP NMC Implementation Audit Form

The September 14, 2009 Implementation Audit Form is located in Appendix S. The items that the City of Welch Sanitary Board needs to address are as follows:

1. The Operation and Maintenance Manual needs to be reviewed and updated on an annual basis to ensure accuracy.

2. Provisions need to be made in the formulation of the Sanitary Boards annual budget to address CSO staffing, equipment purchases and training needs.

3. Recordkeeping needs to be revised to record training programs and attendees as well as CSO related customer complaints.

4. The Operation and Maintenance Manual and CSO Summary Report need to be updated to address necessary training programs.

5. There has been no recorded instance of dry weather flow at any of the remaining active CSO's. Therefore, daily inspections of these CSO's are not necessary. However, monthly inspections should be implemented.

6. The Sanitary Board has purchased a portable flow meter, which will be installed in various CSO's, beginning with the higher priority. Data from this meter will be used in obtaining and recording more accurate discharge volume estimates.

7. In consultation with its operation and maintenance staff, the Sanitary Board needs to obtain critical CSO equipment. The operation and maintenance staff needs to maintain a list of this equipment and recommend replacements and purchases as necessary.

8. The Sanitary Board, along with the Street Department needs to flush out storm sewers and combined sewers on a regular basis and maintain a record of such activities.

9. Non-residential customers, not requiring grease traps, should be visited on an annual basis to determine compliance with the City of Welch Sewer Ordinance.

10. A method of recording and addressing customer complaints, related to CSO's, needs to be implemented by the Sanitary Board and included in the Operation and Maintenance Manual. The outline for this has already been established in the LTCP.

11. The Sanitary Board needs to investigate if pre-storm "draw down" of lift stations would be an appropriate response to an approaching storm event. At present, there are only three lift stations within the city's collection system. Drawing down these lift stations could have some positive impact on wastewater system storage during a storm event.

12. The CSR needs to begin documentation of pre-treatment inspections that are being implemented and recorded by the Sanitary Board.

13. Maximize the flow to the POTW by evaluating the performance of critical equipment, such as lift station pumps, transfer pumps, grit and trash screens. Review the LTCP to determine the capacity of major interceptors. Provide for maximum storage of wet weather flow in the POTW lift station and treatment structures.

14. This LTCP recommends the installation of screens and "snorkels" at each CSO as well as a comprehensive trash and fall leaf pickup program that will minimize trash deposits into the combined sewer system. These recommendations, along with providing trash receptacles in high traffic areas will mitigate solid and floatable material in the combined sewer system.

15. The Operation and Maintenance Manual does not have a pollution prevention plan at present. **The Sanitary Board should include this LTCP as an appendix to its current Operation and Maintenance Manual to address this issue and other operation and maintenance issues.** The additions to the current Operation and Maintenance Manual as a result of meeting the requirements of the Long-Term Control Plan are shown in Appendix U.

16. This LTCP provides for a public notice brochure under Appendix M. This brochure encourages public input and provides contact information.

17. The Sanitary Board needs to investigate a public education and collection program to properly dispose of household wastes.

18. The Sanitary Board needs to follow up on recommendations made in this LTCP regarding public access to CSO discharge, cleanup and maintenance information, conducting public meetings whose intent is to educate the public concerning CSO's and the need for public involvement and input.

19. The Sanitary Board needs to determine the nearest location of stream gauges on Elkhorn Creek and Tug Fork so as to correlate stream flows to the frequency of CSO wet weather overflow events.

20. The Sanitary Board needs to continue collecting water quality samples upstream and downstream of each active CSO for determination of water quality impairment. This collection program is especially important prior to and after each construction project that results in the removal of active CSO's.

The deadline dates for meeting the non-compliant items on the September 14, 2009 Implementation Audit Form are included in Appendix S.

4.0 PUBLIC PARTICIPATION AND CONSIDERATION OF SENSITIVE AREAS

The City of Welch is a community of approximately 2,683 people, according to the 2000 census. Therefore, the city is well under the population limit of 75,000 established in EPA's "Guidance for Long Term Control Plan". Section 1.6.6 entitled "Small System Considerations" acknowledges the limitation of small systems and reduces the necessary sections of the long-term control plan to four key elements. Two of these elements are addressed below.

4.1 Identification of Sensitive and Priority Areas

Sensitive areas, as defined by EPA "Combined Sewer Overflow Control Policy", include designated outstanding national waters, National Marine Sanctuaries, waters with threatened or endangered species and their habitats, waters with primary contact recreation, public drinking water intakes, or their designated protection area, and shellfish beds. The West Virginia Division of Natural Resources, Fish and Wildlife Division identifies no threatened or endangered species or habitats within Elkhorn Creek, Tug Fork and Browns Creek. However, Elkhorn Creek is designated as a high quality trout stream and Tug Fork is designated as a high quality warm water stream, serving as home to bass and catfish. The West Virginia Department of Environmental Protection (WVDEP) determines the required water quality standards for all surface water streams in West Virginia. Michael A. Arcuri, their Environmental Resource Analyst, explained that the water quality standards are quite voluminous and are located on the Department of Environmental Protection's website (www.wvdep.org). WVDEP categorizes Tug Fork as a "Warm Water Fishery Stream" and categorizes Elkhorn Creek as a "Cold Water Fishery Stream". These categories carry their own specific standards within the overall water quality standards. Tug Fork and Elkhorn Creek continue to be used regularly as both warm water and cold water fishery streams. Both streams are actively "fished" by local residents as well as anglers outside of McDowell County. There are no outstanding national waters, national marine sanctuaries, waters with primary contact recreation, shellfish beds or public water intakes (or their designated protection areas) within the Welch City limits.

Priority areas are areas having some environmental significance but not to the level of "sensitive areas". These priority areas may include public access areas, or use of shallow streams for recreational activity with something less than full contact (wading). Since Elkhorn Creek is a high quality trout stream and Tug Fork is a high quality warm water stream, there are some public access routes to each stream.. Therefore, some "less than full contact" activities will take place.

The West Virginia Fish and Wildlife Division has designated Elkhorn Creek as a higher quality fishery stream than the Tug Fork. The Welch Sanitary Board has and will continue to place priority on the construction of separate sewage collection systems and the retirement of CSO's within the Elkhorn Creek watershed. This watershed is designated as Contract No. 7.

4.2 Public Participation and Notification

Public participation and notification for the City of Welch Combined Sewer Overflows include the following:

4.2.1 Legal Advertisement

The City of Welch will begin placing a legal advertisement on the Welch Daily News on an annual basis explaining the importance of avoiding CSO's and identifying the streams that are impacted by the CSO's. These advertisements will include a caution that the public is to avoid these CSO locations when they are discharging. A phone number will also be provided in the advertisement for further information.

4.2.2 Signage

All CSO structures currently have a sign posted on either the body of the CSO structure or mounted on a post adjacent to the structure, warning of the need to stay clear of the CSO during wet weather events.

4.2.3 Brochures

Brochures educating the residents of the operation and purpose of CSO's and the danger of health risks associated with CSO's are made available at City Hall. A copy of the brochure is included as Appendix M.

4.2.4 Media Advisory

When a CSO event occurs, the city has a media advisory read on a local radio station and runs an advertisement in the Welch Daily News.

4.2.5 Public Meeting

On October 21, 2009 a public meeting was held at the Welch Public Library for the purpose of providing information and receiving public input on the City's Long-Term Control Plan. The minutes of this meeting and the Affidavit of Publication are included as Appendix T.

5.0 WATER QUALITY CONSIDERATION

The main objective of for implementing CSO controls is the attainment of water quality standards. The permittee is expected to be knowledgeable about water quality conditions in the local water bodies that receive CSO discharges.

Within the corporate boundaries of the City of Welch, Elkhorn Creek and Tug Fork have been assessed under the 305(b) and 303(d) state water quality standards agency as being threatened or impaired. Tug Fork is impaired biologically and for fecal coliform. Elkhorn Creek is impaired for iron. The pollutants associated with CSO's may be cited as a reason or contributing factor to fecal coliform. The final Total Maximum Daily Load (TMDL) is expected from EPA by the end of 2011 for this watershed group.

Upstream communities beyond the corporate limits of the City of Welch are impairing water quality standards in Elkhorn Creek. None of these towns have a wastewater treatment facility. In addition to these towns there are also unincorporated communities that do not have a wastewater treatment facility. Although there are some permitted on site systems in place (package wastewater systems and septic systems) the majority of these upstream residents and communities discharge raw sewage directly into Elkhorn Creek. The existence of these upstream polluters limit the City of Welch's capability of achieving water quality standards. Similar problems are existent in Tug Fork, although to a lesser degree.

6.0 CSO CONTROL ALTERNATIVES

A major element of the CSO Long Tem Control Plan is evaluation of CSO control alternatives. The CSO control alternatives that could be considered as part of this plan are conveyance to and treatment at the wastewater treatment plant, inflow reduction, sewer separation, off-line storage and wet weather treatment facilities. A brief description of each control alternative is provided herein. A map outlining the boundaries of the sub-sewered areas is provided in Appendix B. LTCP-EZ Forms summarizing conveyance to and treatment at the wastewater treatment plant, inflow reduction and sewer separation are provided in Appendix N.

6.1 Conveyance and Treatment at the Wastewater Treatment Plant

This alternative investigates the potential to convey combined sewage to the wastewater treatment plant and the upgrade of the existing wastewater treatment plant to accommodate this additional flow. To convey the combined sewage flow to the treatment plant, it will be necessary to add a lift station at each of the active CSO's. Each CSO is located along the banks of Elkhorn Creek or Tug Fork. This will require that the lift stations be constructed well within the 100-year flood level. This will necessitate that either a riser be constructed to an elevation above the 100-year flood level or a flood proof hatch be placed on the top of the structure. The cost associated with these new improvements, including upgrades to the wastewater treatment plant will be:

Conveyance and Maximization of Treatment at the WWTP

Improvements	Estimated Cost
New L.S. at CSO No. 5	$1,500,000
New L.S. at CSO No. 7	$500,000
New L.S. at CSO No. 8	$500,000
New L.S. at CSO No. 9	$750,000
New L.S. at CSO No. 10	$800,000
New L.S. at CSO No. 13	$1,000,000
New L.S. at CSO No. 14	$1,750,000
New L.S. at CSO No. 15	$1,000,000
New L.S. at CSO No. 20	$1,200,000
New L.S. at CSO No. 23	$1,100,000
New L.S. at CSO No. 24	$1,100,000
New L.S. at CSO No. 26	$1,000,000
New L.S. at CSO No. 27	$1,100,000
WWTP Improvements	$5,205,632*
Force Main	$2,960,000**
TOTAL ESTIMATED COST	$21,465,632

*** Based on the summation of approximate WWTP storage cost from LTCP-EZ Schedule 5A through 5E**

**** Based upon an approximate force main footage of 14,800 L.F. at a unit cost of $200 per foot.**

6.2 Inflow Reduction

Inflow reduction is a widely used CSO control practice focusing on the removal of direct sources of storm water from the combined sewer system. The only outside source that could be readily removed are roof leaders and downspouts. The cost associated with inflow reduction of each sub-sewered area is shown below. This cost is based on a unit cost of $250 per dwelling.

Estimated Cost of Residential Inflow Reduction

Sub-Sewered Areas	No. Houses	Estimated Cost
CSO No. 5	87	$21,750
CSO No. 7	6	$1,500
CSO No. 8	7	$1,750
CSO No. 9	1	$250
CSO No. 10	15	$3,750
CSO No. 13	15	$3,750
CSO No. 14	20	$5,000
CSO No. 15	20	$5,000
CSO No. 20	21	$5,250
CSO No. 23	25	$6,250
CSO No. 24	4	$1,000
CSO No. 26	45	$11,250
CSO No. 27	12	$3,000
TOTAL ESTIMATED COST		**$69,500**

The above estimated cost includes the houses within CSO No. 26 and 27 drainage areas. Even though these CSO's are scheduled to be capped or removed at the completion of Contract No. 7 C, it will still be necessary to eliminate the downspouts and roof leaders from within these sub-sewered areas. The estimated cost of inflow reduction as a result of downspout and roof leader removal is low when compared with other of the alternates presented herein. However, the positive affects of the implementation of this alternate will be limited by the fact that, once removed directly from the combined sewer system,

the discharges from downspouts and roof drains will be transported into drop inlets or culverts that ultimately connect to the combined sewer system once more.

6.3 Sewer Separation

Sewer separation is the process of replacing the single pipe system of a combined sewer system with separate pipes for storm sewage and sanitary sewage. As stated in earlier sections of this report, this is the method which the City of Welch is currently employing to cap off and retire its existing CSO's. Within the original Contracts No. 6 and 7 areas significant progress has, and continues to be, made in placing new sanitary sewage pipelines and separating the storm sewage flow out of these pipelines. These constructions involve the placement of sewer laterals to the individual customer's homes and making the actual connection to the new sanitary sewer system. Once connection is made, the only remaining source of storm sewage that must be addressed is the removal of any downspouts or roof leaders. Once funding is secured for Contract No. 7D and construction is complete, all of the original Contract No. 7 area will have been separated, except for the five customers served in the vicinity of the slip area on Court Street. Contract No. 6 will require additional construction to connect branch lines. No sewer separation work has been performed on either Contract No. 5 or Contract No. 8.

Since the ongoing sewer separation program is identified with the original Contracts 5 through 8, the cost of future sewer separation will be also tied to these same contracts rather than the sub-sewered areas addressed in earlier sections.

Estimated Cost of Sewer Separation

Contracts	Estimated Cost
Contract No. 5	**$9,518,111**
Contract No. 6	**$3,722,810**
Contract No. 7	**$2,607,500**
Contract No. 8	**$6,774,040**
TOTAL ESTIMATED COST	**$22,622,461**

The above costs were derived from detailed preliminary construction cost estimates, prepared by Stafford Consultants, on behalf of the City of Welch. A copy of the detailed construction cost estimate for each contract is included in Appendix N.

6.4 Off-Line Storage

Off-line storage describes facilities that store combined sewage in tanks, or other detention structures. During dry weather wastewater bypasses these detention structures. During periods of wet weather the combined sewage is directed into these storage facilities, either by gravity or by pumps.

The topography of the City of Welch is rather steep. Residential and business buildings occupy all available land. Due to these restrictions, it will be very unlikely that there will be sufficient space available for off-line detention structures. Additionally, the Combined Sewer Overflows are all situated along the banks of Elkhorn Creek and Tug Fork. This will necessitate lift stations be placed at each CSO. Gravity flow into pumping structures would require that these structures be situated well within the 100-year flood level. Additional cost will be incurred for either adding risers to the wet well to achieve in excess of the 100 year flood elevation or including a flood proof hatch.

For the reasons cited above, off-line storage cannot be implemented in the City of Welch and will not be considered further.

6.5 Wet Weather Treatment Facilities

Wet weather treatment facilities are installed at the end of each combined sewer overflow structure to treat untreated wastewater prior to discharging to the receiving stream. As stated previously, all the CSO structures for the City of Welch are located along the banks of Elkhorn Creek or Tug Fork. In many instances, the terrain in the vicinity of these CSO's is very steep. The feasibility of constructing treatment facilities at each of these CSO's is highly unlikely. Additionally, each of these treatment facilities will have to be protected from the 100-year flood. In light of all the above restrictions, it is highly unlikely that this alternate can be implemented.

Further investigation of this alternative was performed after discussion with West Virginia Department of Environmental Protection personnel. FEMA flood maps were evaluated at the location of each of the remaining active CSO's. The 100-year flood contours at each of these locations were transposed onto the original contoured design drawings and the affected areas delineated. Please refer to Appendix Q for these maps. As expected, all of the developable sites in the vicinity of each of these CSO's will be inundated by a 100-year storm. The only sites remaining are very steep and, in many instances, are already occupied by dwellings. Therefore, this alternative remains unfeasible and will not be investigated further.

Total Evaluated Cost of Evaluated Alternatives

Alternate	Total Estimated Cost
Conveyance & Treatment at WWTP	$21,465,632
Inflow Reduction	$69,500
Sewer Separation	$22,622,461

Inflow reduction is the least costly alternative. However, for the reasons cited under sub-section 6.2, this alternate will have to be implemented along with another alternate to achieve measurable results. The city has had measurable success in sewer separation. In fact, the Contract No. 7 area is on the verge of having its entire service area separated into sanitary and storm sewer systems. Since this alternate has been partially completed successfully and design has been completed on Contracts 5 through 8 (and approved by the Division of Environmental Protection) with this aim in mind, sewer separation is the

preferred method of addressing the city's CSO control for the long term. Additionally, sewer separation is favored from the standpoint of eventually achieving zero combined overflow events. None of the other alternatives address this objective adequately.

On a broad scale, if sewer separation is the chosen alternative, it will be necessary to disconnect the downspouts and roof leaders from all of the residences within Welch, as the sewer separation projects proceed. This will require that roof leaders and downspouts be removed throughout the City and not be confined to those within the drainage areas of remaining active CSO's. According to the 2000 U.S. Census, there were a total of 1,453 housing units within the City of Welch. Some of these housing units are located along the banks of Elkhorn Creek and Tug Fork. Their downspouts would naturally flow directly into either of these two streams. However, if these houses are numbered in the total requiring downspout and roof leader separation, the total cost of this separation will be (1,453 x $250/residence =) **$363,250**. This figure provides a conservative estimate of the cost of performing the work of removing all downspouts and roof leaders in Welch.

7.0 CSO IMPLEMENTATION SCHEDULE

7.1 User Rates

According to the 2000 U.S. Census, (see Appendix O) the median household income (MHI) for the City of Welch, was $19,795. According to the City of Welch Sewer Tariff, (see Appendix P) the City of Welch's customers pay an average bill of $30.35 per month, based upon a usage of 4,000 gallons per month. This user rate is at 1.84% MHI and will be applicable through April 30, 2009. The average bill will increase to $32.00 per month on May 1, 2009, increasing the user rate to 1.94% MHI. Commencing on May 1, 2010, the average bill will increase to $36.00 per month, increasing the user rate to 2.18% MHI. However, the 2010 census will provide an updated assessment of Welch's median household income that could revise the percentages at that time.

7.2 Funding Sources

Upon approval of the Long Term Control Plan, the City of Welch will continue to apply for funding for the proposed collection system improvements. This approach will continue to use the phasing philosophy that has served the city successfully to date. The Consent Decree places the city under court order to make significant and continual improvements to its collections system. This has provided the city with a unique avenue through which to apply for and obtain funding. Sources of funds to date have included:

West Virginia Infrastructure and Jobs Development Council

Appalachian Regional Commission

Rural Utility Service

WVDEP SAP Grants

WVDEP State Revolving Fund

West Virginia Housing Fund

Federal Bureau of Prisons

These and other sources of funds will be approached as the city moves forward with these projects.

The City of Welch has received an Appalachian Regional Commission grant of $1,200,000, a DEP SRF Contingency Loan of $231,833 and City of Welch funds of $68,167 to implement Contract No. 7 C. This $1,500,000 phased portion of Contract No. 7 is anticipated to begin construction in late 2009.

A West Virginia Infrastructure and Jobs Development Council (WVIJDC) funding application for Contract No. 7 D was submitted in February of 2009. The funding source for this project will be a $1,330,000 HUD Small Cities Block Grant (SCBG). This final phase of Contract No. 7 is scheduled for implementation in late 2010.

The "Proposed Combined Sewer Overflow Removal Schedule", shown on the following page, provides a schedule, as well as anticipated funding sources, for implementing the remaining four contracts in a "phased" approach. Each of the original four contracts (5, 6, 7, and 8) have been subdivided into multiple phases and prioritized on a scale of "I" through "IV". This priority may change in the future depending upon local need and potential economic development opportunities related to targeted sewer system development.

CITY OF WELCH
FEDERAL CONSENT DECREE
PROPOSED COMBINED SEWER OVERFLOW REMOVAL SCHEDULE
PROPOSED FUNDING IMPLEMENTATION SCHEDULE

PRIORITY	CONTRACT	ESTIMATED CONSTRUCTION COST	ESTIMATED TOTAL PROJECT COST	SCBG	ARC	COE	SRF LOAN	OTHER	READY TO ADVERTISE	BIDDING	ESTIMATED START OF CONSTRUCTION	ESTIMATED SUBSTANTIAL COMPLETION	IMPACTED CSO'S	CSO REMOVAL DATE
I	7C		$1,500,000	$1,500,000	-0-	-0-	-0-	-0-						
	7D													
	7E													
TOTAL		$ 3,557,070	$ 4,509,000											
II	8A													
	8B													
	8C													
TOTAL		$ 3,471,584	$ 4,480,000											
III	5A													
	5B													
	5C													
	5D													
TOTAL		$ 5,378,314	$ 6,900,000											
IV	6A (CONRACT 5 INDIAN RIDGE)													
	6B													
	6C													
TOTAL		$ 3,096,542	$ 4,000,000											

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